



3135GN – 170M

170 Watts - 60 Volts, 300 μ s, 10%
3100 - 3500 MHz

GENERAL DESCRIPTION

The 3135GN-170M is an internally matched, COMMON SOURCE, class AB GaN on SiC transistor capable of providing 11dB gain, 170 Watts of pulsed RF output power at 300 μ s pulse width, 10% duty factor across the 3100 to 3500 MHz band. The transistor has internal pre-match for optimal performance. This hermetically sealed transistor is designed for S-Band Radar applications. It utilizes gold metallization and eutectic attach to provide highest reliability and superior ruggedness.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C 340 W

Maximum Voltage and Current

Drain-Source Voltage (V_{DS}) 150 V

Gate-Source Voltage (V_{GS}) -8 to +0 V

Maximum Temperatures

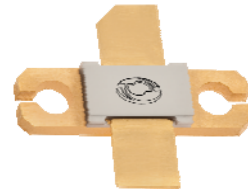
Storage Temperature (T_{STG}) -55 to +125 °C

Operating Junction Temperature +200 °C

CASE OUTLINE

55-QP

Common Source



ELECTRICAL CHARACTERISTICS @ 25°C

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
Pout	Output Power	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	170	185		W
Gp	Power Gain	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	11.5	11.8		dB
η_d	Drain Efficiency	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	35	40		%
R/L	Input Return Loss	Pin=12W, Freq=3.1, 3.3, 3.5 GHz	-9			dB
VSWR-T	Load Mismatch Tolerance	Pout=170W, Freq=3.1 GHz			5:1	
Θ_{jc}	Thermal Resistance	Pulse Width=300 μ s, Duty=10%			0.6	°C/W

- Bias Condition: Vdd=+60V, Idq=500mA peak current (V_{gs} = -2.0 ~ -4.5V typical)

FUNCTIONAL CHARACTERISTICS @ 25°C

$I_{D(Off)}$	Drain leakage current	$V_{gs} = -8V, V_D = 60V$			5	mA
$I_{G(Off)}$	Gate leakage current	$V_{gs} = -8V, V_D = 0V$			4	mA
BV_{DSS}	Drain-source breakdown voltage	$V_{gs} = -8V, I_D = 5mA$	250			V

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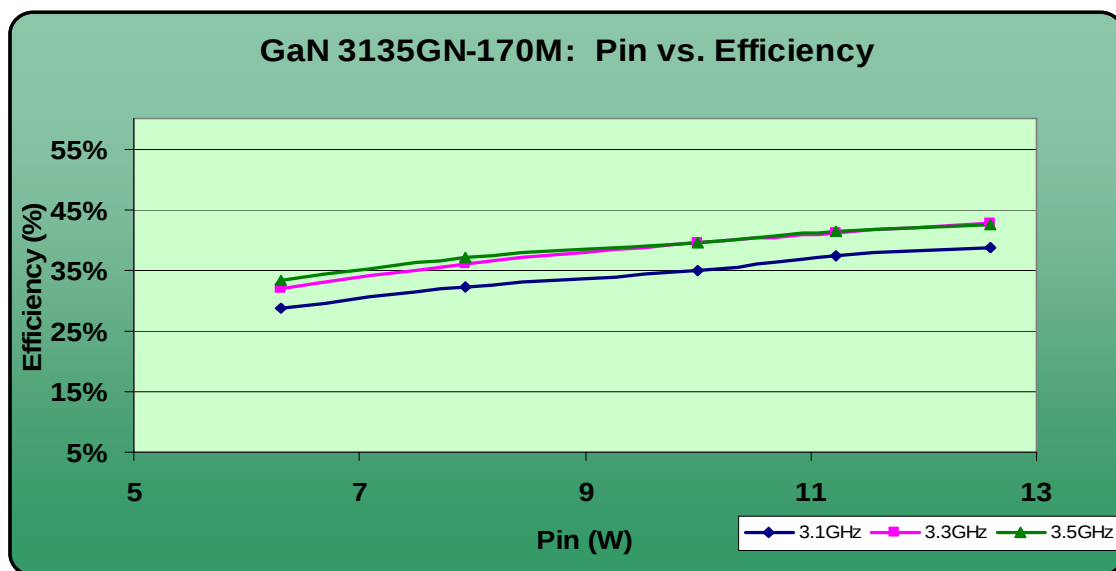
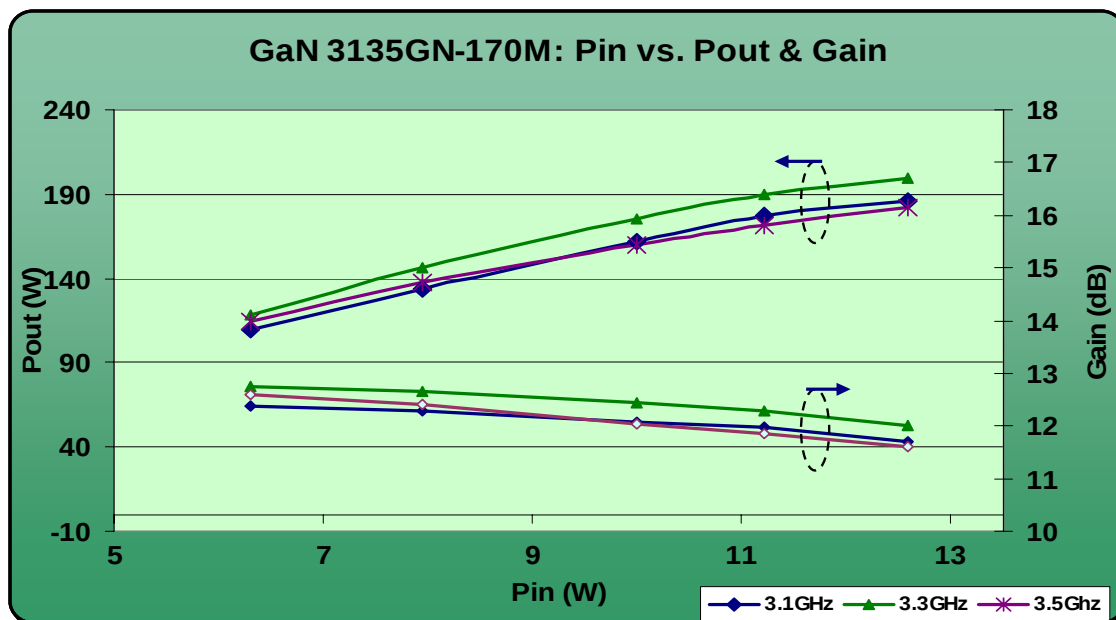


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Typical Performance Data:

Frequency	Pin (W)	Pout (W)	Id (A)	RL (dB)	Nd (%)	G (dB)
3100 MHz	12	180	0.84	-12	36	11.8
3300 MHz	12	194	0.81	-11	40	12.1
3500 MHz	12	177	0.75	-20	40	11.7



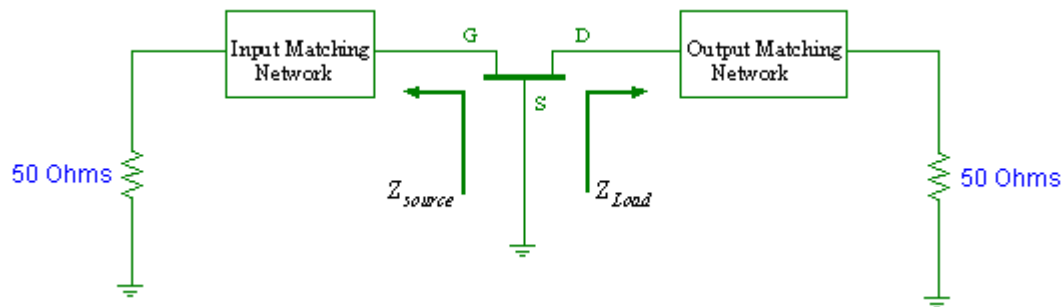


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Transistor Impedance Information

Impedance Data		
Freq (GHz)	Zs	ZI
3.1	5.02 – j9.48	5.04 – j4.88
3.2	4.48 – j9.28	4.56 – j5.21
3.3	3.92 – j8.98	4.08 – j5.36
3.4	3.42 – j8.64	3.52 – j5.36
3.5	3.00 – j8.28	3.02 – j5.24



Note: Z_{in} is looking into the input circuit;
 Z_{Load} is looking into the output circuit.

Test Circuit Layout Available Upon Request

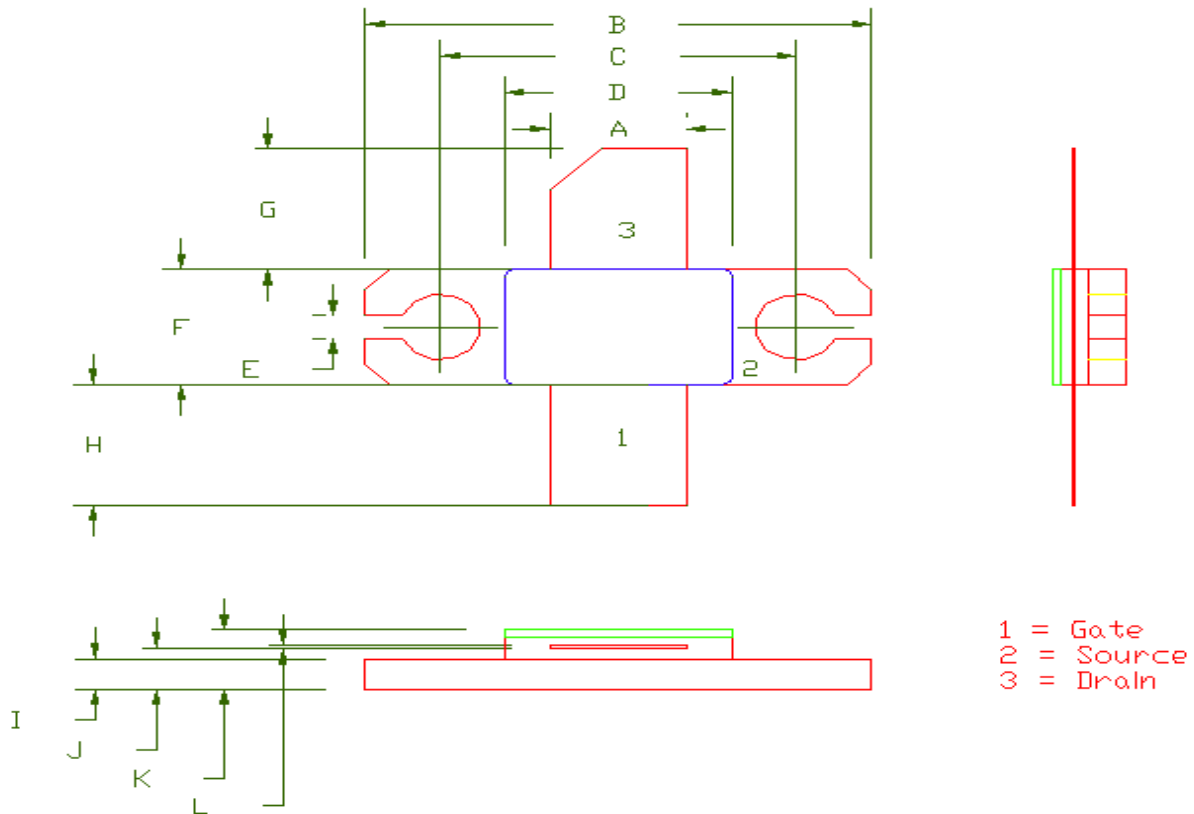
Please send your request to GaN@Microsemi.com



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55-QP Package Dimension



Dimension	Min (mil)	Min (mm)	Max (mil)	Max (mm)
A	213	5.41	217	5.51
B	798	20.26	802	20.37
C	560	14.22	564	14.32
D	258	6.55	362	9.19
E	43	1.09	47	1.19
F	226	5.74	230	5.84
G	235	5.96	239	6.07
H	235	5.96	239	6.07
I	60	1.52	62	1.57
J	81	2.06	82	2.08
K	116	2.94	118	2.99

L	4	.102	6	.152
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